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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,097	09/27/2004	Tatsuo Ito	2004-1513A	1274

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EXAMINER	
GUPTA, PARUL H	
ART UNIT	PAPER NUMBER
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/22/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,097	ITO ET AL.	
	Examiner	Art Unit	
	Parul Gupta	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 9-30 are pending for examination as interpreted by the examiner based on the amendment filed on 11/9/06.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 9, 10, 13-18, and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al., US Patent Publication 2002/0060958 in view of Miyauchi et al., US Patent 4,283,785.

Regarding claim 9, Ando et al. teaches in figure 6 an optical head device comprising: a light source operable to output light (10); focusing means (60) for focusing light outputted from the light source onto a desired data layer of an optical recording medium having multiple data layers (100); wavefront converting means (50 and 52) provided between the light source and the focusing means; aberration detecting means (photodetector 90, explained in paragraph 0231 or element 900 in figure 10) for detecting an aberration amount of a spot of the focus light on the desired data layer; and output controlling means (20A) for controlling output of the light source, wherein the wavefront converting means is driven in such a manner as to reduce the aberration amount detected by the aberration detecting means (explanation given in paragraphs 0043 and 0072), and the output controlling means (20A) stores learned data indicating a

relation between a driving amount to be inputted to the wavefront converting means and the output of the light source (paragraph 0233), and controls the output of the light source based on the driving amount to be inputted to the wavefront converting means and the learned data ("learned data" is current as given in paragraph 0391), the driving amount being changed depending on the aberration of the focus light spot (paragraph 0413). Although Ando et al. does not specifically teach that the light source itself is controlled, this concept is well known in the art. Miyauchi et al. specifically teaches controlling the light source so as to control the output of light by the light source (shown in figure 2 and explained in column 3, line 36 to column 4, line 26). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of controlling the output of the light source by controlling the light source itself as taught by Miyauchi et al. into the system of Ando et al. The motivation would be reduce the erroneous reading of data (column 1, lines 36–53 of Miyauchi et al.).

Regarding claim 10, Ando et al. teaches in paragraphs 0396 and 0413 the optical head device according to claim 9, further comprising driving amount detecting means (subtracter 255 of figure 7) for detecting the driving amount to be inputted to the wavefront converting means (elements 50, 52, and 54 of figure 6), wherein the output controlling means (element 20A of figure 6) controls the output of the light source based on the driving amount detected by the driving amount detecting means. Element 20A is a hologram that splits the beam as necessary. Ando et al. does not but Miyauchi et al. teaches controlling a light source operable to output light so as to control the output of light by the light source (shown in figure 2 and explained in column 3, line 36 to column 4, line 26). It would have been obvious to one of ordinary skill in the art at the time of the

invention to include the concept of controlling the output of the light source by controlling the light source itself as taught by Miyauchi et al. into the system of Ando et al. The motivation would be reduce the erroneous reading of data (column 1, lines 36–53 of Miyauchi et al.).

Regarding claim 13, Ando et al. teaches in figure 6 the optical head device according to claim 9, wherein the wavefront converting means includes a plurality of lenses (elements 50 and 52), and lens driving means (54) for driving one of the plurality of lenses to change a distance between the one lens and the other one of the plurality of lenses (paragraph 0366), and the lens driving means is driven in such a manner as to reduce the aberration amount detected by the aberration detecting means (paragraph 0171).

Regarding claim 14, Ando et al. teaches in paragraphs 0377 and 0378 the optical head device according to claim 9, wherein the output controlling means controls the output of the light source based on the driving amount and the learned data so as to compensate for a spherical aberration of the order higher than a highest order of aberration compensatable by the wavefront converting means. Ando et al. does not but Miyauchi et al. teaches controlling a light source operable to output light so as to control the output of light by the light source (shown in figure 2 and explained in column 3, line 36 to column 4, line 26). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of controlling the output of the light source by controlling the light source itself as taught by Miyauchi et al. into the system

of Ando et al. The motivation would be reduce the erroneous reading of data (column 1, lines 36–53 of Miyauchi et al.).

Regarding claim 15, Ando et al. teaches an optical recording device comprising: the optical head device of claim 9; and rotation driving means for rotating the optical recording medium (paragraph 0629). The section describes the rotation of the medium, meaning that rotation driving means is inherent.

Regarding claim 16, Ando et al. teaches an optical recording method for recording information on an optical recording medium having multiple data layers (element 100 of figure 6) with use of a focus light spot emitted from a light source, the method comprising: learning in advance a relation between a driving amount by which wavefront converting means is to be operated so as to reduce an aberration of the focus light spot, and an output of the light source (paragraph 0373); detecting the aberration of the focus light spot (paragraphs 0379 and 0381); driving the wavefront converting means so as to reduce the aberration (paragraphs 0171 and 0469-0470); and controlling the output of the light source based on the driving amount of the wavefront converting means (paragraph 0396). Ando et al. does not but Miyauchi et al. teaches controlling a light source operable to output light so as to control the output of light by the light source (shown in figure 2 and explained in column 3, line 36 to column 4, line 26). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of controlling the output of the light source by controlling the light source itself as taught by Miyauchi et al. into the system of Ando et

al. The motivation would be reduce the erroneous reading of data (column 1, lines 36–53 of Miyauchi et al.).

Regarding claim 17, Ando et al. teaches in figure 6 an optical head device comprising: a light source operable to output light (10); a focusing system (50) operable to focus light from the light source onto a desired data layer of an optical recording medium having multiple data layers (100); a wavefront converter (50, 52, 54) provided between the light source and the focusing system; an aberration detector (photodetector 90, explained in paragraph 0231 or element 900 in figure 10) operable to detect an aberration amount of a spot of the focus light on the desired data layer; an output controller (20A) operable to control output of the light source, wherein the wavefront converter is driven in such a manner as to reduce the aberration amount detected by the aberration detector (explanation given in paragraphs 0043 and 0072), and the output controller (20A) is operable to store learned data indicating a relation between a driving amount to be inputted to the wavefront converter and the output of the light source (paragraph 0233), and to control the output of the light source based on the driving amount to be inputted to the wavefront converter and the learned data (paragraph 0391), the driving amount being changed depending on the aberration of the focus light spot (paragraph 0413). Ando et al. does not but Miyauchi et al. teaches controlling a light source operable to output light so as to control the output of light by the light source (shown in figure 2 and explained in column 3, line 36 to column 4, line 26). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of controlling the output of the light source by

controlling the light source itself as taught by Miyauchi et al. into the system of Ando et al. The motivation would be reduce the erroneous reading of data (column 1, lines 36–53 of Miyauchi et al.).

Regarding claim 18, Ando et al. teaches in paragraphs 0396 and 0413 the optical head device according to claim 17, further comprising driving amount detector (subtracter 255 of figure 7) operable to detect the driving amount to be inputted to the wavefront converter (elements 50, 52, and 54 of figure 6), wherein the output controller (element 20A of figure 6) is operable to control the output of the light source based on the driving amount detected by the driving amount detector. Element 20A is a hologram that splits the beam as necessary. Ando et al. does not but Miyauchi et al. teaches controlling a light source operable to output light so as to control the output of light by the light source (shown in figure 2 and explained in column 3, line 36 to column 4, line 26). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of controlling the output of the light source by controlling the light source itself as taught by Miyauchi et al. into the system of Ando et al. The motivation would be reduce the erroneous reading of data (column 1, lines 36–53 of Miyauchi et al.).

Regarding claim 21, Ando et al. teaches in figure 6 the optical head device according to claim 17, wherein the wavefront converter includes a plurality of lenses (elements 50 and 52), and lens driver (54) operable to drive one of the plurality of lenses to change a distance between the one lens and the other one of the plurality of

lenses (paragraph 0366), and the lens driver is driven in such a manner as to reduce the aberration amount detected by the aberration detector (paragraph 0171).

Regarding claim 22, Ando et al. teaches in paragraphs 0377 and 0378 the optical head device according to claim 17, wherein the output controller is operable to control the output of the light source based on the driving amount and the learned data so as to compensate for a spherical aberration of the order higher than a highest order of aberration compensatable by the wavefront converter. Ando et al. does not but Miyauchi et al. teaches controlling a light source operable to output light so as to control the output of light by the light source (shown in figure 2 and explained in column 3, line 36 to column 4, line 26). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of controlling the output of the light source by controlling the light source itself as taught by Miyauchi et al. into the system of Ando et al. The motivation would be reduce the erroneous reading of data (column 1, lines 36–53 of Miyauchi et al.).

Regarding claim 23, Ando et al. teaches an optical recording device comprising: the optical head device of claim 17; and rotation driver operable to rotate the optical recording medium (paragraph 0629). The section describes the rotation of the medium, meaning that a rotation driver is inherent.

Regarding claim 24, Ando et al. teaches the optical head device according to claim 9, further comprising driving means for driving the wavefront converting means based on the aberration amount detected by the aberration detecting means (inherent to method as described in paragraphs 0090 and 0091).

Regarding claim 25, Ando et al. teaches the optical head device according to claim 9, wherein the output controlling means comprises a computer. Paragraph 0633 explains how a computer is used to store various data that is used by the light sending system to control the light.

Regarding claim 26, Ando et al. teaches the optical head device according to claim 9, wherein the aberration detecting means comprises a computer (explained in paragraph 0614).

Regarding claim 27, Ando et al. teaches the optical head device according to claim 17, further comprising a driver operable to drive the wavefront converter based on the aberration amount detected by the aberration detector (inherent to method as described in paragraphs 0090 and 0091).

Regarding claim 28, Ando et al. teaches the optical head device according to claim 17, wherein the driver comprises a voice coil motor (paragraph 0365).

Regarding claim 29, Ando et al. teaches the optical head device according to claim 17, wherein the output controller comprises a computer. Paragraph 0633 explains how a computer is used to store various data that is used by the light sending system to control the light.

Regarding claim 30, Ando et al. teaches the optical head device according to claim 17, wherein the aberration detector comprises a computer (explained in paragraph 0614).

3. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. as applied to claim 9 above, and further in view of Itou, US Patent Publication 2002/0024736.

Ando et al. in view of Miyauchi et al. teaches all of the limitations of claims 9 and 17. Ando et al. in view of Miyauchi et al. also teaches controlling a light source operable to output light so as to control the output of light by the light source (shown in figure 2 and explained in column 3, line 36 to column 4, line 26). However, Ando et al. in view of Miyauchi et al. does not teach the further limitations of the given current components as given in claims 11 and 19.

Regarding claims 11 and 19, Itou teaches in paragraphs 0027 and 0028 the optical head device, wherein the output controlling means or controller is operable to control the output of the light source (optical wavelength) based on the product of a direct current component and an alternate current component of the driving amount to be inputted to the wavefront converting means or wavefront converter.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of controlling the light source based on the product of current components as taught by Itou into the system of Ando et al. This method would be useful to control accurately despite interruptions of the signal or changes in frequency (paragraph 0005; Itou) or even changes in the intensity of the signal (second half of paragraph 0028; Itou).

4. Claims 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. as applied to claim 9 above, and further in view of Yoshida, US Patent 6,381,074.

Ando et al. teaches all of the limitations of claims 9 and 17.

Ando et al. does not teach the limitations of claims 12 and 20.

Yoshida teaches the optical head device, wherein the wavefront converting means and the wavefront converter is a liquid crystal device (column 12, lines 33-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of a liquid crystal device in the wavefront converting means as taught by Yoshida into the system of Ando et al. in order to create a lens that is capable of freely changing power or configuration (column 12, lines 35-39; Yoshida).

Response to Arguments

5. Applicant's arguments filed 11/9/06, particularly directed the concept of controlling the light source so as to control the output of light outputted by the light source have been fully considered but they are not persuasive. All applicant arguments are directed to the same limitation. Miyauchi et al. specifically teaches in this concept in the given section.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PHG
11/29/06

GAUTAM R. PATEL
PRIMARY EXAMINER